

EXECUTIVE SUMMARY

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A literature review of research
conducted on public interest,
knowledge and attitudes to
biomedical science.

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Summary

1. A team at the University of Surrey was commissioned to review and critically assess all surveys relating to biomedical science conducted among adult populations, aged 18+, globally since 1980. The report provided detailed recommendations on how best to measure awareness, interest and attitudes within this complex area.
2. The systematic review of existing studies of public knowledge, interest and attitudes to biomedical science identified 298 publications, 236 studies, 140 knowledge questions, 85 interest questions and 817 attitude questions.
3. The ten primary areas in which attitude questions have been administered in the surveys reviewed were: attitudes to biotechnology/genetic engineering; genetic testing and modification/therapy; stem cells and cloning; beliefs about genetic influence on traits and behaviour; storage and use of human genetic information; personal experience of genetic illness; nanotechnology; the use of animals in research; regulation and trust.
4. The concentration of attitude items within the ten areas set out above is very uneven, with particular concentrations found within 'biotechnology/genetic engineering', 'genetic testing' and 'stem cells and cloning'. This skew is largely reflective of the degree of public controversy associated with each area at various times over the previous quarter century, rather than the importance of each of these areas within the discipline of biomedicine as a whole. The extent to which certain areas are perceived to be under- or over-represented is, primarily, a function of the rather ad hoc way in which public opinion surveys on biomedical science have been carried out over the past 25 years.
5. A key issue in measuring public opinion to new and emerging technologies relates to how the researcher should go about measuring opinion towards areas of science and technology about which most members of the public are only dimly aware. Three primary approaches are discussed in the report: using abstract/generalised question formats; providing a descriptive statement which 'educates' respondents as part of the question; and 'filtering out' ill-informed respondents from substantive attitude questions. Given these constraints, the optimal approach is probably represented by some kind of hybrid of all three, in conjunction with more in-depth investigations of a more qualitative nature.
6. Generally, measures of interest/engagement can be characterised as falling into two broad categories: subjective self-assessments of 'interest'/'importance'/'concern'; and self-reported behavioural indicators of interest and involvement. According to the report, these measures generally perform well and future surveys should aim to utilise a combination of self-assessed and behavioural indicators to produce a composite measure of personal salience of biomedical science.
7. Existing knowledge measures fall into one of three categories: self-assessed knowledge; fixed choice format; and open format. While there are some noted problems with fixed choice format, particularly their susceptibility to guessing and the differential effect this has across subgroups, according to the report they represent the most accurate and cost-effective means of measuring knowledge of biomedical science.

8. Another important point in relation to the selection of items for future surveys is that a large number of the questions covered by this review have now been asked in many different countries around the world, over a long and growing time period. Although some of the items, for which time series or comparative data exist, have some methodological problems, the ability to make retrospective and cross-national comparisons would be an important added value for any future survey in this area.
9. The report concludes that surveys are generally conducted in a *reactive* manner – if a biomedical application receives media attention, or becomes the focus of political controversy, a poll will often be conducted as a result. Even when more academic surveys have been conducted, such as the British Social Attitudes Survey, different teams of investigators, motivated by different theoretical and disciplinary concerns, have conducted the studies in different years with funding obtained from different bodies, with often rather different research agendas. This reactive environment has led to a lack of in-depth, cumulative data on public attitudes towards biomedical science. An exception to this general rule are the National Science Foundation (NSF) Science Indicator Series and the Eurobarometer series, which have now built a planned and theoretically motivated time series of evidence on attitudes to science in the USA and Europe respectively. However, both these series count biomedical science as only one of a broader list of areas of interest, meaning studies that focus wholly or predominantly on public opinion toward biomedical science to date have been sporadic.